

## PATENT COOPERATION TREATY

PCT

BCF S.E.N.C.R.L./LLP

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

30 MAI 2005

|   |   |   |
|---|---|---|
| Applicant's or agent's file reference<br>08241-185        | <b>FOR FURTHER ACTION</b>   | see Form PCT/ISA/220<br>as well as, where applicable, below<br><b>REQU/RECEIVED</b> |
| International application No.<br><b>PCT/CA2005/000220</b> | International filing date (day/month/year)<br>18 February 2005 (18-02-2005) | (Earliest)Priority date (day/month/year)<br>18 February 2004 (18-02-2004)           |

Applicant  
VOICEAGE CORPORATION ET AL

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

[ ] The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. [ ] With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. [ ] Certain claims were found unsearchable (see Box No. II).

3. [X] Unity of invention is lacking (see Box No. III).

4. With regard to the title,

[ ] the text is approved as submitted by the applicant.

[X] the text has been established by this Authority to read as follows :

Methods and devices for low-frequency emphasis during audio compression based on ACELP/TCX

5. With regard to the abstract,

[ ] the text is approved as submitted by the applicant.

[X] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. 20

[ ] as suggested by the applicant.

[ ] as selected by this authority, because the applicant failed to suggest a figure.

[X] as selected by this Authority, because this figure better characterizes the invention.

- b. [ ] none of the figures is to be published with the abstract.

**INTERNATIONAL SEARCH REPORT**International application No.  
PCT/CA2005/000220**Box No. II      Observations where certain claims were found unsearchable (Continuation of item 2 of the first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons :

1. [ ] Claim Nos. :  
because they relate to subject matter not required to be searched by this Authority, namely :
  
2. [ ] Claim Nos. :  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically :
  
3. [ ] Claim Nos. :  
because they are dependant claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box No. III      Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows :

Group A - claims 1-34, these claims are directed to a method and device for low-frequency emphasizing a sound spectrum;  
Group B - claims 35-53, these claims are directed to a method and device for high frequency coding comprising performing gain correction based on signal energy;  
Group C - claims 54-66, these claims are directed to a method and device for decoding a high frequency signal;  
Group D - claims 67-92, these claims are directed to a method and device for switching from a first coding mode to a second coding mode.

1. [ ] As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. [ ] As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. [ ] As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claim Nos. :
  
4. [ X ] No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim Nos. : 1-34

**Remark on Protest** [ ] The additional search fees were accompanied by the applicant's protest.

[ ] No protest accompanied the payment of additional search fees.

**INTERNATIONAL SEARCH REPORT**

International application No.  
PCT/CA2005/000220

**Box No. IV****Text of the abstract (Continuation of item 5 of the first sheet)**

The abstract currently on file exceeds the maximum of 150 words, and has been rewritten to more clearly define the invention claimed.

An aspect of the present invention relates to a method for low-frequency emphasizing the spectrum of a sound signal transformed in a frequency domain and comprising transform coefficients grouped in a number of blocks, in which a maximum energy for one block is calculated and a position index of the block with maximum energy is determined, a factor is calculated for each block having a position index smaller than the position index of the block with maximum energy, and for each block a gain is determined from the factor and is applied to the transform coefficients of the block.

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/CA2005/000220

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G10L-19/04, G10L-19/12

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G10L-19/04, G10L-19/12;  
ECLA G10L-19/04, G10L-19/12

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)

QWEB, Canadian Patent Database, IEEE xplore

Keywords: energy, power, gain, factor, emphasis, shaping, preemphasis, transform, blocks, low frequency, distortion, compression, ACELP, TCX

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                                   | Relevant to claim No(s). |
|-----------|--|--------------------------|
| A         | US 6,266,632 B1 (Kato et al) 24 July 2001 (24-07-2001)<br>** abstract, fig. 3, col. 6, line 53 to col. 8, line 37 ** | 1-4, 10-11, 13-16, 22-23 |
| A         | US 2002/0163455 A1 (Reefman et al.) 7 November 2002 (07-11-2002)<br>** abstract, par. 0006 **                        | 1, 4, 13, 14, 16         |

 Further documents are listed in the continuation of Box C. See patent family annex.

|   |     |  |
|---|-----|--|
| * Special categories of cited documents :   | "T" | later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  |
| "A" document defining the general state of the art which is not considered to be of particular relevance  | "X" | document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone   |
| "E" earlier application or patent but published on or after the international filing date   | "Y" | document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art |
| "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "&" | document member of the same patent family  |
| "O" document referring to an oral disclosure, use, exhibition or other means  |     |  |
| "P" document published prior to the international filing date but later than the priority date claimed  |     |  |

Date of the actual completion of the international search

05 April 2005 (05-04-2005)

Date of mailing of the international search report

26 May 2005 (26-05-2005)

Name and mailing address of the ISA/CA  
Canadian Intellectual Property Office  
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Gatineau, Quebec K1A 0C9  
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**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.  
**PCT/CA2005/000220**

| Patent Document<br>Cited in Search Report | Publication<br>Date | Patent Family<br>Member(s)     | Publication<br>Date      |
|---|---------------------|--------------------------------|--------------------------|
| US6266632                                 | 24-07-2001          | JP3307875B2 B2<br>US6266632 B1 | 24-07-2002<br>24-07-2001 |

|              |            |  |  |
|--------------|------------|--|--|
| US2002163455 | 07-11-2002 | AU8593601 A<br>BR0107191 A<br>CN1388964 A<br>CN1388965 A<br>EP1317754 A1<br>EP1328938 A1<br>JP2004508598T T<br>JP2004508755T T<br>US6819275 B2<br>US2002165631 A1<br>US2004230427 A1<br>WO0221525 A1<br>WO0221526 A1 | 22-03-2002<br>16-07-2002<br>01-01-2003<br>01-01-2003<br>11-06-2003<br>23-07-2003<br>18-03-2004<br>18-03-2004<br>16-11-2004<br>07-11-2002<br>18-11-2004<br>14-03-2002<br>14-03-2002 |
|--------------|------------|--|--|